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JULY 5.

The President, Dr. RUSCHENBERGER, in the chair.

Seventeen persons present.

A paper entitled, "The Snare of the Ray Spider, *Epeira radiosa*, a new form of Orb-web," by Rev. H. C. McCook, D. D., was presented for publication.

Sarcodes sanguinea.—Mr. THOMAS MEEHAN referred to discussion among members at former meetings, as to the true character of parasitic plants. They were believed to be in the main of two classes,—one which might be represented by the common mistle-toe, with woody stems continuing from year to year,—the other like the *Arceuthobium*, or pine parasite, which died to the surface of the wood, but continued to grow up from the same spot every year—a sort of parasitic herbaceous plant. It was a question how far root parasites partook of these several characters. There were some plants, as *Castilleja* and *Comandra*, which might be said to be in a transition state between an ordinary terrestrial plant and a parasite. Usually they were as other plants, but some of the roots would attach themselves to other roots, and form as perfect a union as genuine parasites, and, by the decline in vigor of the victim root beyond the point of union, evidently showed they were really parasitic, deriving nourishment from the attachment. *Aphyllon uniflorum*, germinated on the annual fibrous roots of *Asters* and *Solidagoes*, as had been clearly traced, and perhaps on other plants; and after germination formed a mass of innumerable coral-like spongelets, drawing moisture and perhaps some other elements of nutrition from the surrounding medium. *Epiphegus Virginiana* behaved precisely in the same way. *Mono-tropa* and others had also this mass of pseudo-roots, or spongelets, and had been supposed to germinate and live wholly on half decayed vegetation, but he believed from analogy they would be found, as in *Epiphegus* and others, to germinate at first on living roots. *Conopholis* was the only root parasite he had found any reason for believing to be a perennial. This had been found attached to quite large roots, evidently coming up from the same spot from year to year as *Arceuthobium* does.

Having correspondents in regions where grows the beautiful Snow-plant of the Sierras—*Sarcodes sanguinea*—about which nothing but its aerial character has been so far known, he had set them to watching for him, their appearance and final end. The places where they grew were carefully marked, and with the following results:—Mr. John M. Hutchings, of Yosemite, found the bottom of the old plants 10 to 14 inches below the surface, with not the slightest signs of attachment anywhere. To him it ap-

peared no more than an "ordinary annual plant of great beauty." Of course an ordinary annual growing from seed, could not push through the ground at so great a depth. The vital power spent in overcoming so heavy an obstruction, would be exhausted long before the growing point pushed through a foot of soil to the surface, as observing seed growers of experience would testify. Only a parasite, or bud, having an unlimited supply of food to draw on could accomplish this feat. But the matter was settled by another observer, Mrs. Ross Lewers, of Washoe Valley, Nevada, who, together with her observations, had sent the dead spongy mass from the last year's plants, which Mr. M. exhibited, and these were found to have a slender pine root through the mass around which the spongy mass had grown, and as it was dead, there was little doubt that it had been the matrix from which the seed had made its original start, and which the plant killed in the end. The dead, spongy mass of pseudo-roots was larger than he had seen in any other species of root parasite. Altogether it might be said that *Sarcodes sanguinea* was an annual, germinating on small pine roots, and subsequently obtaining subsistence from the earth as *Aphyllon*, *Epiphegus*, &c.

Talinum teretifolium.—Mr. THOMAS MEEHAN remarked that the point he made recently in regard to *Draba verna*, that mere light alone evidently failed to account for the special opening-time of flowers, was confirmed by recent observations on *Talinum teretifolium*. When preparing the chapter on this plant for his "Native Flowers and Ferns of the United States," a few years ago, he had watched plants almost daily through the whole season and found that without any exception they opened at 1 P. M. and closed at 2. This season he had watched them again and found that though the time of opening was the same, 1 P. M., they never on any occasion noted, closed at 2, but continued open sometimes to half-past three or half-past four, and on one occasion were found closing at half-past five. Mr. Meehan said he had endeavored to associate these variations with some atmospheric changes, such as heat, light, or moisture, but in no case did these endeavors prove satisfactory. In the "Proceedings of the Kansas Academy of Science," Professor Smyth had contributed materials for a "floral clock" for Kansas, and *Talinum teretifolium* was set down in the list as opening at 11 A. M. in that State.

Mr. Meehan believed that the laws influencing this peculiar class of motion in flowers, were completely hidden from us, and that the subject offered an inviting field to the biologist.

Mr. Redfield suggested that perhaps the age of the plants made some difference in their habits.

Mr. Meehan replied that the patch in his garden was much larger now than at first, from addition through self sown seeds; but all the plants behaved precisely alike. He did not suppose